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CLASSIFICATION

THIS DOCUMENT REQUIRES SPECIAL HANDLING

HANDLING PROCEDURES

THIS DOCUMENT CONTAINS INFORMATION REGARDING A HIGHLY CLASSIFIED ACTIVITY. PERMISSION TO TRANSFER CUSTODY, OR PERMIT ACCESS TO THIS DOCUMENT MUST BE OBTAINED FROM THE ORIGINATOR. HAND CARRY PROCEDURES WILL BE APPLIED TO ANY INTER-OFFICE OR INTRA-AGENCY MOVEMENT OF THIS DOCUMENT.

Amend #1

REFERRED TO OFFICE	RECEIVED SIGNATURE	DATE	TIME	RELEASED DATE	TIME	SEEN BY NAME AND OFFICE SYMBOL	DATE
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CLASSIFICATION

168-5

FORM 12-57 1352

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Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

CHAL-0687

Contract No. SE-509
Amendment No. 1

Granger Associates
966 Commercial Street
Palo Alto, California

Gentlemen:

1. This document constitutes Amendment No. 1 to Contract No. SE-509 between the Granger Associates, Palo Alto, California, and the United States Government and said contract is amended as hereinafter set forth.

2. Pursuant to the clause entitled "CHANGES" of the General Provisions hereof, PART I of the Schedule is amended by revising Item 1 to read as follows:

"Item 1 - Fabricate two (2) each Production Models of the One Watt Traveling Wave Tube Repeater Jammer, Mod. 504, in accordance with Exhibit I, attached hereto and made a part of this contract, at a unit price of $32,433.00, and a total price of $64,866.00."

3. In accordance with the provisions of Item 2 of PART I of the Schedule the parties hereto have agreed upon a list of spare parts necessary to support Item 1. Accordingly, Item 2 is revised to read as follows:

"Item 2 - Contractor shall furnish to the Government two (2) sets of spare parts necessary to support Item 1 for a period of one (1) year. Said spare parts are set forth in Appendix I attached hereto and made a part of this contract at a unit price per set of $9,280.00 and a total price of $18,560.00."

4. PART II - DELIVERY is amended by revising Item 2 to read as follows:

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

"Item 2 - Contractor shall deliver one (1) set of spare parts concurrent with delivery of the first unit under Item 1 and the second set concurrent with the second unit called for under Item 1."

5. PART VI - PRICE REDETERMINATION of the Schedule is amended by revising the last sentence in paragraph C thereof to read as follows:

"In no event shall the redetermined price exceed the sum of $89,912.00."

6. The contract is further amended by adding a new PART VII to the Schedule to read as follows:

"In the performance of Items 1 and 2 of the Schedule the Government shall furnish to the Contractor as Government furnished property the equipments or materials as set forth in Appendix II attached hereto and made a part of this contract."

7. All other terms and conditions of Contract No. SE-509, as amended, remain unchanged.

8. Please indicate your receipt of this Amendment No. 1 to Contract No. SE-509 and your acceptance thereof by executing the original and two copies of this Amendment. Return the fully executed original and one copy thereof to the undersigned and retain the remaining copy for your files.

Very truly yours,
THE UNITED STATES GOVERNMENT

STAT

By: [redacted]
Contracting Officer

ACKNOWLEDGED AND ACCEPTED
THIS ____ DAY OF _____, 1959.
GRANGER ASSOCIATES

BY _____

TITLE _____

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

EXHIBIT I
To Contract No. SE-509

The following design specifications for the Countermeasures Repeater, Mod 504, are intended to serve as a guide for the design and manufacture of the equipment. These specifications are not intended to be so rigid as to prevent the Contractor from including refinements and/or changes that will be of significant improvement to the system.

1. The box will operate without degradation due to its environment when that environment is equal to that in which the prototype was tested except that the pressure in the compartment shall drop to 4.0 psi.

2. The horns shall be directed downward at an angle of ten (10) degrees.

3. The phase shift as applied to the conical scan data will be fixed to hold to the 180° point with scan rates between 25 and 100 cycles per second. As a secondary objective the 180° phase shift should hold for higher frequency, up to 200 cycles per second, if practical.

4. A programmer shall be installed which will give preference to the conical scan type of jamming. When no continuous pulse data is being received, the cw doppler jammer will be gated on. It will be gated off during the reception of continuous pulse type signals.

5. Better antenna isolation than was experienced with the prototype equipment will be attempted by using a lossy material between the two horn antennas.

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

APPENDIX I
Contract No. SE-509
SPARE PARTS

Item No.	Description	Mfr and P/N	Qty Per Set
1	Blower	Rotron-368YS	1
2	Capacitor, Tantalum, 2.5uf, 15v	GE-29F557	7
3	Capacitor, Tantalum, 60 uf, 15v	GE-29F481	7
4	Capacitor, Tantalum, 200 uf, 15v	GE-29F482	3
5	Capacitor, Tantalum, 15 uf, 15v	GE-29F480	3
6	Capacitor, Tantalum, 580 uf, 15v	GE-29F484	1
7	Capacitor, Tantalum, 125 uf, 25v	GE-29F486	2
8	Capacitor, Tantalum, 32 uf, 30v	GE-29F627	1
9	Capacitor, Tantalum, 4.5 uf, 50v	GE-29F473	1
10	Capacitor, Tantalum, 60 uf, 50v	GE-29F475	2
11	Capacitor, Tantalum, 1 uf, 150v	GE-29F469	2
12	Capacitor, Mica, 360 uuf, 500v	Arco-CM15-E-361 5%	2
13	Capacitor, Mica, 1000 uuf, 500v	Arco-CM20-E-102 5%	3
14	Capacitor, Mica, 47 uuf, 500v	CM15-E-470 5% (Arco)	1
15	Capacitor, Mica, 47 uuf, 500v	Arco-CM15-E-470 5%	1
16	Capacitor, Paper, 0.1 uf, 100v	Gudeman-XF827-2713-10%	1

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Mfr. and P/N	Qty Per Set
17	Capacitor, Paper, .01 uf, 100v	Gudeman XFS27-2707-10%	3
18	Capacitor, Paper, .022 uf, 100v	Gudeman XFS27-2709-10%	1
19	Capacitor, Paper, 0.22 uf, 100v	Gudeman XFS27-2715-10%	1
20	Capacitor, Paper, .068 uf, 100v	Gudeman XFS27-2712-10%	1
21	Capacitor, Paper, .0047 uf, 100v	Gudeman XFS27-2705-10%	1
22	Capacitor, Paper, 0.47 uf, 400v	Gudeman XFS27-2774-JT-10%	1
23	Capacitor, Paper, .01 uf, 400v	Gudeman XFS27-2764-10%	1
24	Capacitor, Plastic, 0.25 uf, 3kv	Plastic Capacitor Inc. CF30-254	2
25	Capacitor, Plastic, 0.5 uf, 2kv	Plastic Capacitors Inc. CF20-504	1
26	Capacitor, Plastic, 0.1 uf, 2kv	Plastic Capacitors Inc. CF20-104	1
27	Capacitor, Plastic, .01 uf, 3kv	Plastic Capacitors Inc. CF30-103	3
28	Detector, Crystal	Sylvania IN358A	1
29	Diode, 1N191	Hughes	10
30	Diode, 1N270	Transitron	9
31	Diode, HR10215	Hughes	3
32	Diode, 1N468A	Hoffman	3
33	Diode, 1N626	Hughes	1
34	Diode, 1N457	Hughes	1
35	Flanges, Waveguide Pressurizing	Varian Assoc. V1100B	2

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Mfr. and P/N	Qty Per Set
36	Modulator, Ferrite Microwave	Cascade Research R920	1
37	Potentiometer, 1 K	Bourns 2008-1-102	7
38	Potentiometer, 10 K	Bourns 2008-1-103	2
39	Potentiometer, 100 K	Bourns 212-1-104	2
40	Rectifier, 5000 v	PSI 1N1734	4
41	Regulator Tube, Corona, 2kv	Victoreen GV3A-2000	2
42	Relay, Subminiature, 28v DPDT	General Electric 3527910-200D10	2
43	Relay, Time Delay, 26.5v, 60 sec.	Curtiss Wright 26.5-60-SGO	1
44	Relay, SPDT	Allied RSH-3D	1
45	Transistor, 2N670	Philco 2N670	5
46	Transistor, HA7503	Hughes HA7503	3
47	Transistor, 2N167	General Electric 2N167	14
48	Transistor, 2N345	Philco 2N345	5
49	Transistor, 2N247	RCA 2N247	1
50	Transistor, 2N123	General Electric 2N123	9
51	Transistor, HA7510	Hughes HA7510	2
52	Transistor, 2N671	Philco 2N671	2
53	Transistor, 2N620	Raytheon 2N620	2
54	Transistor, 2N495	Philco 2N495	4
55	Transistor, 2N491	General Electric 2N491	2
56	Transistor, 2N174A	Delco 2N174A	2
57	Transistor, 2N158	CBS 2N158	1
58	Transformer, High Voltage	Pico	1

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Mfr. and P/N	Qty Per Set
59	Transformer, Inverter	Pico	1
60	TWT, 1 watt	Huggins HA-21	1
61	TWT, 10 Milliwatt	Huggins HA-20	1
62	Vacuum Tube	6J4	2
63	Vacuum Tube	National Union 6842	2
64	Vacuum Tube	12AT7	2
65	Vacuum Tube	Raytheon 5744WA	1

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

APPENDIX II
CONTRACT NO. SE-509

GOVERNMENT-FURNISHED PROPERTY

A. TEST EQUIPMENT

Item No.	Description	Qty.
1	FXR Type #X622A E/H Tee Serial No. 186	1
2	Hewlett-Packard 809B Probe Carriage, 752D Coupler 442B Broadband Probe, Serial No. 3874	1
3	Hewlett-Packard 870A WG Slide Screw Tuner with X-13 Klystron, Tag #455-003-05	1

B. PARTS AND MATERIALS

Item No.	Description	Qty.
1	Rotron Aximax Blower 10M-A015805	1
2	Snapper 26.5-60-HAO	1
3	Winchester MRE9PG Plugs	9
4	Winchester MRE93G Receptacle	1
5	Winchester M78 Receptacle	2
6	Hoffman 1N465 Silicon Diodes	4
7	Hughes HA7510 Diodes	2
8	Delco 2N174 Transistor	1
9	Raytheon 2N620 Transistors	3
10	CBS 2N158 Transistors	1
11	Transitron 1N483A Diodes	4
12	Hughes 1N626 Diodes	9
13	General Transistor GT-34N	5
14	RCA 2N247	3

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Qty.
15	Philco 2N345	6
16	GE 2N167	4
17	PSJ 1N1732	4
18	TI 1N589	7
19	Sylvania 1N358A	1
20	Hughes HA7508	4
21	Gudeman 337Y224M	2
22	Gudeman 338Y103J	2
23	Gudeman XHFS 2786-20	3
24	Gudeman XHFS 2712-10	5
25	Plastic Capacitors CF20-103	4
26	Plastic Capacitors CF30-502	1
27	Plastic Capacitors CF20-104	1
28	Plastic Capacitors CF30-254	3
29	Plastic Capacitors D6-30-250	4
30	Dalohm Resistors 125K3%RSE-10-10W	2
31	Dalohm Resistors 175K3%RSE-10-10W	2
32	Dalohm Resistors 150K3%RSE-10-10W	2
33	Dalohm Resistors 100K3%RSE-10-10W	2
34	Ohmite AS3611 Variable Resistors	2
35	Ohmite AS3612 Variable Resistors	1
36	Ohmite AS3613 Variable Resistors	2
37	Bourns Trimpots 120-I-E-10,000	2
38	Bourns Trimpots 120-I-E-1,000	1
39	Bourns Trimpots 120-I-E-50	2

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Qty.
40	Bourns Trimpots 120-15-100,000	1
41	Bircher 4B5 Cool Clamps	5
42	Sylvania 12AT7 Tubes	2
43	Raytheon 5744WA Tubes	1
44	Raytheon 5744WA Tubes	1
45	RCA 684A Tubes	5
46	Victoreen GV3A-2000 Regulator	1
47	Arnold C Cores #AZ15	4
48	UG-29A/U, Connectors 82-65	2
49	UG-57B/U Connectors 82-835	1
50	UG-21D/U Connectors	4
51	UG-27C/U Connectors 82-213	4
52	Huggins HA20GA Traveling Wave Tube Ser. #119	1
53	Huggins HA21GA Traveling Wave Tube Ser. #172	1
54	R-920 Gyraline	2
55	IN1732 Hi Volt Rectifier	16
56	29F482 G4 Capacitors	9
57	29F557 G4 Capacitors	25
58	29F484 G4 Capacitors	2
59	29F486 G4 Capacitors	2
60	29F627 G4 Capacitors	3
61	29F473 G4 Capacitors	3
62	29F475 G4 Capacitors	6
63	29F469 G4 Capacitors	3
64	2N620 Raytheon Transistors	4
65	2N491 GE Transistors	4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Qty.
66	2N 247 RCA Transistors	2
67	2N 158 CBS Transistors	2
68	2N 670 Philco Transistors	10
69	1N 589 T. I. Transistors	1
70	Type 2 Aximax Blowers	2
71	5612 Gremar Connectors	16
72	GV3A-2000 Corona V Regulator	2
73	OF30-254 Plastic Capacitor	4
74	OF20-103 Plastic Capacitor	6
75	OF30-104 Plastic Capacitor	4
76	OF20-504 Plastic Capacitor	2
77	82-99 Amphenol	2
78	654 Tubes	8
79	12AT7 Tubes	2
80	XFS-2713-10 .10MFD 100v Capacitors	3
81	XFS-2707-10 .01MFD 100v Capacitors	10
82	XFS-2715-10 .22MFD 100v Capacitors	3
83	XFS-2712-10 .068MFD 100V Capacitors	3
84	XFS-2705-10 .0047MFD 100v Capacitors	3
85	XFS-2709-10 .022MFD 100v Capacitors	3
86	XFS-2764-20 .01MFD 400v Capacitors	3
87	XFS-2774J-20 .47MFD 400v Capacitors	3
88	3S 27910 200N10 Diode	4
89	HXN-10 Signal Samplet	2
90	GA-42-T2 Transformer (Allen)	2
91	OF30-502 Plastic Capacitor	2

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Sanitized Copy Approved for Release 2011/01/04 : CIA-RDP89B00709R000200450004-4

Item No.	Description	Qty.
92	1N626 Silicon Junction Diode	2
93	1N457 Diode	2
94	HR 10215 Diode - (Hoffman)	1
95	1N191 Germanium Diodes	20
96	29F486 G4 Capacitors	4

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